

*Civil*  
**DEFENCE**  
**NOTEBOOK**



## FOREWORD

This Notebook concerns National Safety. It consists of a series of articles on the What, Why, Who, When and Where of Civil Defence.

These articles were originally provided to Canadian weekly newspapers by the Information Services Division of the Department of National Health and Welfare to explain plans for dealing with disaster. They inform Canadians, particularly those outside larger centres, of their roles in emergency and outline Civil Defence organization and requirements at all levels to assure Canada's capacity to cope with catastrophe.

*Series First Printed 1956*  
*Notebook First Printed 1957*  
*Second Reprint (Revised) 1958*

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## CHAPTER 1 Development



The only absolutely certain defence against the hydrogen bomb is to be where it isn't. And even then there is danger from its radioactive fallout unless you're far enough away.

The manned bomber, capable of spanning oceans in a few hours and the probability of a tactical Inter-continental Ballistic Missile, has brought the H-bomb threat into the very front yards of North America. Its destructive capabilities are so great that not only would large cities be in danger but also towns, villages and even farms. It is this possibility of infinitely greater horror on the home front should a third world war come that has created a need for Civil Defence measures in Canada more urgent than it was for Britain during the worst buzz-bomb days of the Second World War.

But what is Civil Defence? When and how did it take on such importance?

The ultimate aim in war today is to break the enemy's will to fight. The ultimate aim of Civil Defence, therefore, says the Federal Civil Defence Co-ordinator, is: "To reduce the effects of enemy attack in order that the people maintain their will to win, public utilities are restored, essential production can continue and the government can continue to govern."

The value of a civil population organized to care for itself when disaster strikes was never more clear than during the Second World War. With an efficient civilian defence organization, Britain was able to sustain months of terrible bombings without losing the will and ability to fight.

It was built, as Canada's is being built, by using the normal services and facilities of governments at all levels, assisted by volunteers and non-governmental organizations. Civil Defence must be built through a network of organization from the federal government through the provincial to the municipal level. The services required of Civil Defence are the same now as during the war: police, fire, health and medical, welfare, warden, engineer and public utility, transportation, communications and information.

But destructive as they were, the bombs of the Second World War were like mites compared to the H-bomb. There was not the need, as there is now, to evacuate whole cities. There was still safety in bomb shelters. The big C.D. job then was *after* the raid.

Most important was to assess the damage and casualties as quickly as possible. The wardens with

their neighborhood setup proved invaluable for this. But another problem followed close behind a bombing raid. People flocked to the damaged areas to seek information about relatives and friends. And, the British found, people didn't want to go to city hall, say, to get it. Setting up inquiry points on the spot became a part of the C.D. service to sort out this information so important to the civilian population's morale.

Trained volunteers provided through Britain's C.D. setup to supplement normal fire-fighting forces were able to increase the speed with which fires were controlled and put out. Countless lives were saved by the quick action provided through volunteers trained in rescue and first-aid work. The normal services would have been swamped. C.D. volunteers often worked 72 hours at a stretch.

Should a nuclear war come to Canada, Canadians would face all the dangers Britons faced, multiplied several thousand times. Main difference is that against H-bomb attack the only real safety is in evacuation of potential target areas—chiefly large cities. The day of ducking into a shelter during a bombing raid and cleaning up after it is over has ended.

Canada's Civil Defence policy for target areas has evolved into four stages:

1. Evacuation of non-essential persons—children, expectant mothers, aged, infirm and so on—to outlying towns and villages when intelligence reports indicate an impending attack. This likely would be about 12 hours before the bombers were expected to arrive and would involve about 35 per cent of a city's population.

2. Planned withdrawal of the rest of the population based on an alert from the radar warning devices being thrown up around North America's outer fringes by the U.S. and Canada.

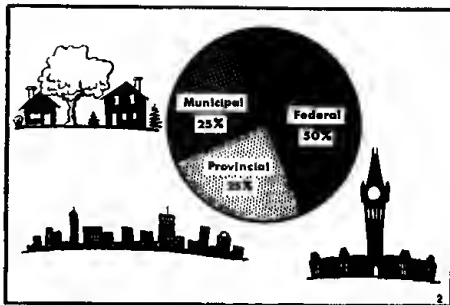
3. After the bomb, potential fallout areas must be ascertained and alerted; populations evacuated from cities must be found shelter in towns and villages; mobile columns would return to the stricken cities when directed to help those who may not have escaped in time and get necessary production of essential materials under way.

4. Rehabilitation of families, providing food, shelter and medical care, etc.

With the capability now in Communist as well as American hands of wiping out whole cities and endangering vast rural areas with radioactive dust particles raining from the sky from one exploding H-bomb, the importance of civilians organizing themselves and being trained to provide themselves the maximum protection from such destruction seems obvious.

## CHAPTER 2

### Who pays?



Canada's Civil Defence bill is big and still growing, but it would be bigger without the citizen volunteer. Under the Canadian C.D. setup each province and municipality is responsible for adapting broad federal policies to the needs of its own people, for Ottawa exercises no administrative control over local C.D. agencies.

Civic-minded volunteers, therefore, are the backbone of Civil Defence. The bill is not small. It probably won't shrink as long as atomic war is a threat. But the Federal Civil Defence Co-ordinator has said:

"To federalize Civil Defence, to plan for a provincial or municipal government staff in all its ramifications, would involve a paid force numbering thousands."

So far the federal government, in various ways, has paid the lion's share. It has agreed, at conferences with provincial officials, to provide training, research, equipment and financial assistance. The provinces and municipalities are taking it from there.

Main federal assistance has been in grants established in 1952 on the basis of eight cents per capita for the whole province with another six cents per capita for target area cities. For the first two years the grants were available on the basis of a federal dollar for every provincial dollar up to the province's population quota. In the last two years these were extended to municipalities as well, providing the province approved.

That is, for municipal projects the federal contributions now are made on the basis of 50 per cent from Ottawa, 25 per cent from the province and 25 per cent from the municipality. If the province doesn't participate financially, the federal contribution is 25 per cent direct to the municipality.

In the 1952-53 fiscal year the federal government matched these provincial Civil Defence expenditures: British Columbia, \$114,964; Alberta, \$85,545; Saskatchewan, \$25,206; Manitoba, \$15,899; Newfoundland, \$5,244. In 1953-54: British Columbia, \$107,714; Alberta, \$85,545; Saskatchewan, \$34,020; Manitoba, \$25,158; Nova Scotia, \$4,020; Newfoundland, \$3,015.

It was in 1953-54 that British Columbia municipalities led the way in Civil Defence, financially at least, by putting up \$145,728. They led the next year, too, shelling out \$225,000. Ontario municipalities

entered directly into the Civil Defence financial picture then, too, with \$48,366 to Ottawa's \$18,122.

That year, 1954-55, federal grants matched were: British Columbia, \$158,350; Alberta, \$118,922; Saskatchewan, \$42,087; Manitoba, \$25,892; New Brunswick, \$12,433; Nova Scotia, \$17,925; Newfoundland, \$21,373.

In 1955-56 a definite increase was shown across Canada in FAP payments for Civil Defence with the province of Ontario leading with \$190,776. Other payments were: British Columbia, \$187,271; Alberta, \$118,030; Saskatchewan, \$39,356; Manitoba, \$37,126; New Brunswick, \$12,758; Nova Scotia, \$30,780 and Newfoundland, \$30,763.

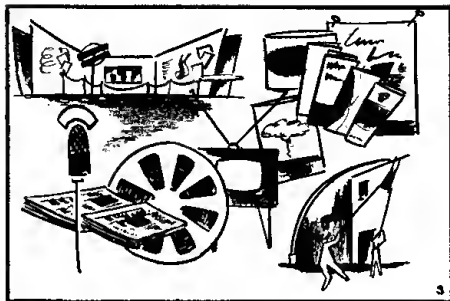
Administrative officers at federal Civil Defence headquarters in Ottawa, have estimated that of the \$4,800,000 available through grants in the first three years of the program, the provinces took up about \$1,000,000.

The grants, however, are only one side of the federal Civil Defence assistance program. Its direct Civil Defence expenditures from 1950-55 totalled some \$9,000,000 and its estimates for the 1955-56 fiscal year were \$7,000,000.

It set up the Canadian Civil Defence College at Arnprior, Ontario, and pays expenses for training persons from all provinces. It has put aside \$9,000,000 for stockpiling emergency medical supplies. It has supplied warning sirens to major cities, fire pumpers, stretchers, training manuals and other equipment wherever there was a need.

And these costs do not include such projects as the multimillion-dollar radar warning screens going up around the continent, tele-communications, the Ground Observer Corps and others closely related to the defence of Canada. The federal government also greed to pay one-third of the cost of standardizing fire hose coupling sizes. Ontario, British Columbia and Alberta have taken advantage of this offer.

## CHAPTER 3 Its Organization



The federal government's part in Civil Defence is mainly to co-ordinate provincial plans with the over-all plan of the country in event of an enemy attack. It must provide direction, assistance and training. But Civil Defence cannot be imposed from the top.

No government—not even the federal government—can do this job alone. Under Canada's constitutional setup, the job of organizing the civilian population so that it can protect itself in event of a disaster such as atomic war falls to each level of government—federal, provincial and municipal.

The federal government recognized the need of Civil Defence in Canada as far back as 1948 when it appointed F. F. Worthington as Federal Civil Defence

Co-ordinator. At that time Civil Defence came under jurisdiction of the Department of National Defence. It was switched to the Department of Health and Welfare in 1951. A federal-provincial conference of Civil Defence officials agreed on which government would share what responsibilities.

It was agreed that the federal government would operate a central training school for Civil Defence specialists. The Canadian Civil Defence College was established at Arnprior, Ont., 40 miles northwest of Ottawa. More than 9,000 persons have been trained by the federal Civil Defence organization so far and Canada now has some 95,000 fulltime Civil Defence workers including firemen, policemen, etc., where normal jobs fulfill a Civil Defence function and 128,000 volunteers.

Courses are held at the college continuously except for the month of August when it closes for vacation. Its instructors have given courses to police chiefs, fire chiefs, doctors, industrial personnel and many other groups from across Canada.

Through the Department's Information Services Division the federal Civil Defence organization also has carried on an intensive educational campaign to acquaint Canadians with the importance and function of Civil Defence.

The federal government is responsible for co-operation with United States Civil Defence planners and the establishment of a warning system to tip the country of any possible enemy attack. It is stockpiling medical supplies at strategic points across Canada. It has provided essential Civil Defence equipment, training manuals and publications.

It agreed to carry out research on Civil Defence through government research establishments and to help the provinces by paying one-third of the cost to standardize fire hose couplings. Ontario, Alberta and British Columbia are the only provinces so far to take advantage of this arrangement which makes it possible for fire equipment from one town to be used in any other town in the province.

These are the chief functions of the federal Civil Defence organization in peacetime. Should war come, it would also:

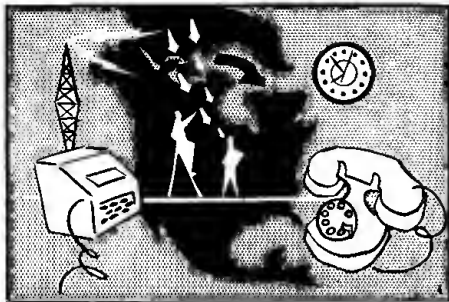
1. Warn of an oncoming attack through electronic devices being built around the rim of the continent.
2. Co-ordinate interprovincial movement of aid to provinces and municipalities under attack and distribute the federal stockpile of attack supplies.
3. Co-ordinate the nationwide jobs of other federal agencies and keep the Prime Minister and the people informed of the attack's effects.
4. Participate in decisions concerning emergency restoration of communications, transportation and other essential functions.

The senior government can offer guidance, planning and financial assistance, but the successful prosecution of a Civil Defence program depends, in the last analysis, on the participation of individual citizens and on community leadership.



## CHAPTER 4

### Provincial Responsibility



The 10 provincial governments in Canada would be responsible for a sort of family-like co-operation among their communities should a nuclear war ever hit this continent. Meanwhile, during this time of peace the provinces' job is to make such co-operation possible should emergency conditions arise.

The latest Civil Defence thinking has underlined this duty of the provinces heavier than others. Evacuation of cities likely to be hit by the H-bomb is considered the only really safe defence against annihilation. But where are these people from the cities to go? How are they to get there? These are questions the provinces must answer. They are seeking the solutions now. They appear in several steps.

First the provincial governments had to create their own Civil Defence organization. This was done following conferences among federal and provincial authorities in 1950-51 and regularly since. Each province now has a functioning Civil Defence organization within the framework of its government. Each has a cabinet minister responsible for Civil Defence and a provincial Co-ordinator. Their staffs vary according to how actively the province participates.

Canada's constitution is such that communication between various governmental levels runs from the federal through the provincial to the municipal or local. This places responsibility on the provinces for co-ordinating the efforts of its communities into the plan for the whole country.

The province must help its communities organize their own Civil Defence setups; it must keep municipalities informed of the latest developments and provide training of Civil Defence volunteers within the province. It also must provide the legislation necessary for local authorities to operate; that is, it must delegate the necessary authority to carry out a Civil Defence operation.

Advance warning of an impending attack would come through provincial facilities from the federal organization and should communications on a national scale be interrupted, the provincial organization would have to supply direction for local plans.

What about the money necessary for equipment, training and organization centres? The province is responsible for assisting in this way, too. It can get financial help from the federal government which will match provincial contributions on a dollar-for-dollar basis up to an amount based on the population of each province.

In other words if the province agrees (the federal government, under the constitution, cannot work directly with the municipality unless the province allows it) the federal Civil Defence organization can contribute 25 per cent of a local project's costs. Then if the province puts in 25 per cent, the federal contribution will be increased by another 25 per cent, leaving the municipality with the other 25 per cent of the cost to pay. Beyond this federal assistance the province must go itself.

The big job of each province, however, is to organize reception areas to take in people evacuated from cities likely to be bombed. These will be towns and villages ringing the target cities. Because of the destructive power of the new weapons these reception areas must not be less than 50 and may be up to 100 miles from the city.

The province must organize routes to be taken to these reception areas, seeing that the first arrivals go to the farthest area. These areas would have to provide food and shelter from weather as well as radioactive fallout that might be carried by winds from the target area. These facilities must be capable of caring for the evacuees for at least 48 hours, probable time for any radiation danger to disappear. If the radiation danger, determined by the Civil Defence radiation detection teams, were stronger, the reception areas would have to be equipped to decontaminate personnel.

Should whole cities be made uninhabitable, their residents after the bombing would have to be re-established in new communities, posing new problems that would fall again under provincial jurisdiction.

## CHAPTER 5

### Local Responsibility



Most of the operational details—the transfer of plans into hard work and sweat—fall on the shoulders of the municipalities. The federal and provincial levels of government must provide the plan; only the people can carry it out. And the local government—the mayor or reeve and his councillors—are the officials in closest contact with the people.

The threat of disaster, whether from any enemy attacking with H-bombs or from flood, hurricane or fire, makes the need of an organization in every community capable of minimizing the effects of disaster obviously important. This can be set up only by each community, for only a community's inhabitants can

assess how its facilities, its lay of the land and so on may best be used to protect itself from the dangers an enemy attack would bring.

The first thing any organization needs is direction. So the initial step a community must take toward a Civil Defence organization is to set up a control committee, with possibly the mayor or reeve as chairman. It must provide the guidance for citizens willing to help make the Civil Defence plan work.

To direct the plans developed by the committee, a Civil Defence director must be appointed. He would be a fulltime or part-time official or volunteer depending on the size of the community. His duties, of course, would be as varied as the needs of a city compared to a town, a town compared to a village.

Most Canadian towns and villages fall into two categories for Civil Defence purposes: Mutual Aid Areas or Reception Areas. The Mutual Aid Area is the region around a Target Area—usually the large cities—whose communities are organized to provide help where needed when disaster strikes. The Reception Area is outside the Mutual Aid Area and is organized to receive long-term evacuees and casualties and to send help to a Target Area.

A community's Civil Defence plan would be determined, therefore, by the area-classification under which it falls. To develop its plan, a community should form a Civil Defence Planning Committee. Its members would include heads of each civic government department concerned with Civil Defence, persons representing transportation, industry, labor, the police and fire chiefs, the town engineer, the medical officer of health. The Civil Defence director would be chairman.

Officials of churches, service clubs, welfare agencies and so on also may be included on the committee. In short, anyone who can help organize the community's facilities for whatever purpose disaster will require of them, whether for emergency feeding, shelter, first-aid—even to baby-sit for children separated from their parents.

The community Civil Defence director and his staff must make surveys of the resources available; they must know the condition of the roads, the amount of sleeping space available for evacuees from bombed cities, and the food supplies available. Could their community provide emergency water supplies for another town? Could they provide fire-fighting equipment? How much hospital space has the community? How many doctors? Nurses? Where can they be reached?

The Civil Defence director and his organization must keep in touch with Civil Defence officials in neighboring communities so that their efforts can be co-ordinated in time of disaster.

Just as the federal and provincial Civil Defence organizations aim at using all existing agencies to meet disaster, supplementing them with volunteers so should the community organization. Most Civil Defence organizations are broken down into these services: headquarters, fire, police, health, welfare, warden, engineering and public utility restoration, rescue and transportation.

Every community has the nucleus of these services already in existence. The purpose, therefore of the

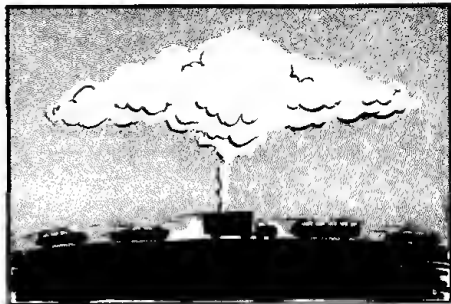
community Civil Defence organization is to provide direction for existing services and to expand them through recruiting and training of volunteers.

The importance of the volunteers—the store-keeper, service station operator, farmer, housewife—can hardly be exaggerated. For the call on each Civil Defence service will increase in direct proportion to the scale of whatever disaster may come.

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## CHAPTER 6

### In War



Have you ever wondered why you keep hearing and reading about Civil Defence all the time these days? Why don't they drop the subject for a while? Let's talk about something cheerful for a change. How much do they expect a person to take? How long is this going to go on?

If you have wondered about these questions, you're certainly not the only one. But what about these questions—what are the answers? Let's drop the present for a moment then and look back at some recent history.

The airplane has probably done more than any other device contrived by man to bring war from the battlefield into the backyard. So let F. F. Worthington,

the first Federal Civil Defence Co-ordinator, take the history from here. And don't think he has a personal axe to grind in this Civil Defence business. He confessed to some 70 newspaper and radio reporters recently that he'd far rather be home in Vancouver enjoying his retirement. "But there was a job to do," he said. "They asked me to do it." He left it at that.

"Following the Second World War," he told a group of women in Toronto not long ago, "it was fully realized that, in any future conflict, the civil population would inevitably become a target in the strategical aim of an aggressor for two reasons:"

"First, because in a democratic country the government responds to the will of the people and if the morale and the will of the people is broken, it will reflect immediately upon the centre of government and may well bring about capitulation.

"Second, the complexity of weapons and equipment required in modern warfare renders the armed forces dependent upon production, and production depends upon the men and women who work in the fields and factories.

"Therefore, if the will to work or the people themselves are destroyed, production will cease and the armed forces cannot continue the struggle."

How to meet this new menace to every man, woman and child—for the H-bomb makes no exception to age or sex—was the problem out of which grew modern Civil Defence. But how should Civil Defence be created? There were two possible solutions.

The federal government could set up a central body, semi-military in nature, to make Civil Defence compulsory across the country. But how would this be accepted by each province? How would your community like to be told how to protect itself by some official in a distant capital?

The other solution, the one Canada chose, was an organization based on the ancient concept of self-help, from which so many services already existing in Canada have arisen. Of this F. F. Worthington said:

"To maintain peace in the world, as it is today, demands a heavy price—the price of preparedness, because no aggressor nation will dare attack unless it is reasonably sure to win—and to win, our home front must be knocked out.

"This preparation we call Civil Defence must be carefully carried out. It requires time, but above everything else—it requires the acceptance of responsibility at every level of government and of as many of its citizens as possible."

He added: "There is hardly a community in our country that will not be affected in the event of enemy attack. There is a feeling that the smaller communities in the "safe" areas have little responsibility for preparedness because they are out of harm's way.

"I wish to emphasize in the strongest possible terms that such a belief is entirely erroneous. No one city, however big, can withstand the terrible effects of an atomic weapon without the combined efforts of

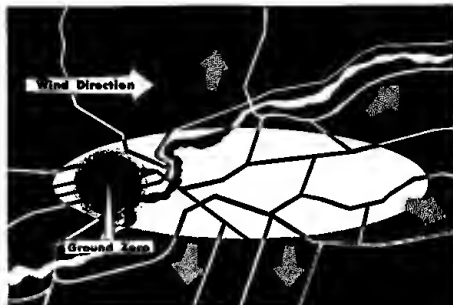
each and every community within reasonable distance, and when I say reasonable distance I am talking in terms of hours of travel—not miles."

Does that answer the question? All but one—how long does this go on? Here's that answer from G. S. Hatton, present Deputy Federal Civil Defence Co-ordinator:

"The need for Civil Defence will continue until either we have achieved a permanent secure peace or our military advisers are able to guarantee that no enemy can make a successful attack on this country. Neither is a foreseeable contingency and as long as we need a military defence we shall need a Civil Defence."

## CHAPTER 7

### New Weapons



The evolution of weapons with greater and greater powers of devastation has made Civil Defence as vital to the small community as it is to the large city. Basically, the danger threatened by war is the same as ever: destruction, death and injury. But, while the over-all effects of a mass saturation raid such as took place in the summer of 1943 on Hamburg was tremendous, the nuclear bomb is capable of creating the same degree of destruction from one bomber and one bomb in a matter of a few minutes. In consequence, the danger is very much greater.

So Civil Defence today is different in many ways from that which was used during the Second

World War. It has had to change as the threats of new weapons changed.

The single atomic bomb that fell on Hiroshima in August, 1945, destroyed 62,000 of 90,000 buildings and damaged 6,000 more beyond repair. As a result of the bomb, 80,000 of the city's 250,000 population died. The first H-bomb tested destroyed everything within three miles, severely damaged everything within seven miles and lightly damaged as far as 10 miles. More powerful bombs have since been tested.

It became apparent that Civil Defence planning had to be revised. Emphasis was shifted from a policy of "duck and cover" to one of "evacuation" where time permits. That's where the smaller communities come in. They must be prepared to offer assistance to stricken cities.

But what really brought the small community into the changing Civil Defence picture was the aftermath of atomic bombs—nuclear radiation. When the fireball of an atomic blast touches the ground, it pulverizes everything—brick, steel, stone, earth—in its path.

These highly radioactive particles are sucked into the air as high as 80,000 feet. Air currents catch them up and carry them until they slowly drift to the ground as "fallout." This fallout may cover an area 200 miles or more long and 40 miles wide, depending on air currents. The danger it presents also varies, depending on the length of time it has drifted in the sky. Animal life touched by fallout may die or become severely ill.

But this threat is far from hopeless. The radioactivity of fallout decays rapidly and danger usually

disappears within 48 hours. A community could escape the danger if it were prepared. First it must have means of learning when and where the fallout may appear. Then it must be prepared to take adequate shelter, quickly, for at least 48 hours. A community would then need to know when it was safe to come out.

It is because of these new dangers to even the small, out-of-the-way community that Civil Defence planning has been extended to include the towns and the villages and the farms as well.

Is the situation hopeless? Civil Defence says "no".

Self-protection measures become even more important since many more people are likely to be affected. Community organization is more essential than ever, to take care of larger numbers of casualties and evacuees and cope with a greater amount of destruction than heretofore had been anticipated.

That wouldn't leave much of any Canadian city and there is, therefore, only one sure means of survival for the people living in such a city: not to be there when the bomb goes off. A basic plan of evacuation that can be adapted to any Canadian city has been worked out by federal Civil Defence headquarters. Briefly, it is this:

**PHASE C**—Civil Defence authorities must instruct the public on whatever additional survival action should be taken as the bomb explodes. Everyone must remain in shelters, or, if on an evacuation route, keep going until directed to shelter. These directions would be given by radio through traffic officers and Civil Defence wardens.

**PHASE D**—In this post-bomb period, hundreds of thousands of people will be scattered outside the city in small communities. People may be separated from families and must be brought together again. They must be kept informed, given food, shelter and clothing and protection against radioactive fallout, the dangerous dust from the pulverized city sifting down from the sky an hour or so after the blast.



The rehabilitation period that followed would not be handled by Civil Defence alone but by all government agencies and all the people of Canada.

To carry out such an immensely detailed plan these essential steps are recommended:

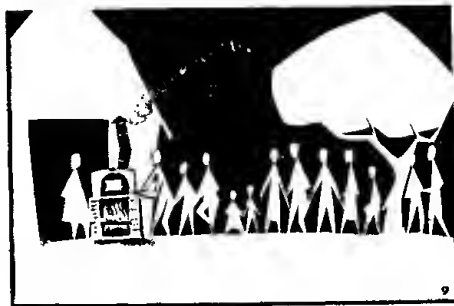
A well-organized Civil Defence force, including auxiliary personnel for police and fire duties and wardens, about one to every 150 families to supply the vital link between the people and the city's main Civil Defence organization.

Development of an operational plan for evacuation, based on sector dispersal and primary exit routes as illustrated. The city Civil Defence director should set up working teams to find solutions to every problem. Then the plan must be tried out.

The Federal Civil Defence Co-ordinator was not exaggerating when he said: "Evacuation of a large city will work well only when a great deal of planning and testing has been done."

## CHAPTER 9

### In A Small Town



The small town will have to come to the rescue of the cities of Canada if ever involved in a nuclear war. In the Civil Defence plan, the small town would assume the role of relief and rehabilitation.

The only effective defence against the H-bomb, with its massive destructive power, is evacuation of likely target areas before the bomb falls. The population of strategic cities, therefore, would have to be absorbed in small towns and villages up to 100 miles away. That gives practically every community in the country a vital role in the over-all plan.

Towns close to cities may be required to provide many types of assistance. Transportation, most vital

element in evacuation planning, may be required to help carry away the city population. Assistance from the closer towns, fire departments would be needed since no city is equipped to battle the fires expected to follow a nuclear attack.

But the big job would be to care for the evacuees. Many would have nothing with them but the clothes they were wearing. The small towns would have to provide them with clothing, food and shelter. Emergency hospitals would have to be set up outside the stricken cities.

The first thing necessary for a small town's Civil Defence planning is to determine how its present facilities and layout can best be used. How many evacuees could it care for? What help could it spare for a target city? Has it any large buildings that could serve as emergency hospitals? How many feeding establishments has it and what capacity could they handle in an emergency?

Then it must have a plan through which its facilities can be put into use. The need of volunteers trained to supplement all of a town's regular services—police, fire, health and welfare—is obvious considering the increased demands a large influx of evacuees would make on them.

No community, however small or isolated, can consider itself outside these responsibilities. The vast area that would be affected by just one H-bomb blast refuses to relieve any town of these obligations.

It is estimated, for example, that the area contaminated by radioactivity downwind from one exploded bomb might be 200 miles long and 40 miles

wide. The size of this area would vary according to the power of the bomb, the height at which it burst, the nature of the ground under the burst, and the weather at the time. It is possible to survive the fall out in proper shelter, for such radioactivity decays rapidly.

But evacuation is still the most effective defence. In event of a heavy bomb blast, leaving a whole city dangerously radioactive, and contaminating large areas outside it, the evacuees would have only one safe course: to keep going until they got as far away as possible.

So no small town or community can consider itself too isolated to be of use in reducing the effects of nuclear attack on the larger and less fortunate communities.

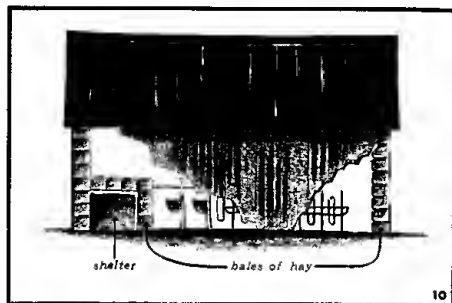
"Having regard for the magnitude of the problems before us," the Federal Civil Defence Co-Ordinator has said, "it must be obvious to all that our safety depends on nation-wide unity of purpose.

"There are no short cuts. The responsibility cannot be placed on the shoulders of any one level of government, nor can it rest entirely on the shoulders of the three levels of government.

"Every organization and all the people have to carry some share of responsibility if we are to survive in the event of nuclear attack."

## CHAPTER 10

### In Rural Areas



The airplane is blamed for bringing war to the civilian population of countries. In the past, the cities were considered the only areas in real danger. The hydrogen bomb, however, unimaginable the idea may be, has extended this threat to even the most remote farm.

It is this vast, almost unbelievable new danger that has posed the two main problems before Canada's Civil Defence planners: how to save the population of the cities and how to save the rest of the population. The only answer for cities is evacuation. The main solution for rural people is to provide adequate shelter.

The farmer's chief danger from an H-bomb attack arises from its radioactive fallout, the dust of pulverized

cities that settles over large areas following the blast. This danger extends not only to the farmer and his family but to his livestock and even his crops.

There are ways to guard against this fallout danger. The first step is to be warned in time that it is coming. This can only be done effectively through a well-organized Civil Defence setup that takes in every farmer in the district.

It is impossible to predict the size and location of a fallout area until a bomb is dropped. It is important, therefore, to know every protective measure that can be taken before such a disaster takes place. This is one case in which ignorance would be anything but bliss. That is why Civil Defence has become as important to the farmer as to any other citizen: Civil Defence training can provide the farmer with knowledge that is power to protect himself.

Radioactive fallout can contaminate animals, crops and unpackaged foods. It can contaminate houses, cars, yards and fields. It can contaminate water supplies so that they should not be used until they are decontaminated.

The only safe thing to do if fallout occurs is to take shelter. The actual strength of the shelter is not important. The material and the thickness of the walls and roof determine the degree of protection.

A farmer can provide his stock protection by keeping them in the barn. Since the danger from fallout might last 48 hours or more, this means someone should stay in the barn all this time to avoid walking back and forth from the house for feeding and watering.

It is necessary, too, that means of determining the strength of radiation in the fallout be available. Or that information on its danger be available from radiation detection units in the nearest village or town so that a farm family will know when it is safe to come out again. Civil Defence planning before such disaster comes is the only means of assuring the farmer this will be available.

The farmer may be called on to help his city neighbours, too, so that his place in Civil Defence is not just to learn how he may help himself but also how to help others less fortunate in disaster.

If large cities are wiped out, his crops and livestock, his milk and eggs and butter would become a vital necessity to the life of the whole country. His supplies would be needed to help feed the refugees from the cities. His house and even his outbuildings may be needed to help shelter them. Even his machinery, his tractors, trucks and even horses, if he has them, could be urgently useful. But they would be useless if he was caught unprepared and all were contaminated.

Civil Defence in Canada, to achieve maximum results, must extend to every community, no matter how small. It is being organized, as a result, on an area basis comprising a number of towns and communities.

And, it must also embrace means of preparing and warning farmers in isolated places.

## CHAPTER 11

### Why in Rural Areas?



Space and a comparatively small population could prove to be Canada's ace in the hole if thermonuclear warfare should ever come to North America. But Canada almost certainly would still be in a hole if its Civil Defence organization did not include the small town and rural areas. And even if such a war never comes, there is a present need for a well-developed nationwide Civil Defence plan for the natural disasters that have a habit of striking where least expected.

Canada's big advantage in meeting the menace of nuclear war is that there are few targets in this country which an enemy is likely to attack on the first raid.

The early warning electronic devices being built around and across the continent to tip off Canada and the United States of any approaching enemy planes are now in operation. This advance warning, G. S. Hatton, Deputy Federal Civil Defence Co-ordinator, has said, "justifies our accepting the practicability of a policy of evacuation of our larger cities, especially in view of the vast expanse of this country, the low density of population and our considerable transportation resources."

Evacuating cities obviously makes it necessary for the small town and rural areas to absorb and care for the evacuees. But the towns and rural areas have a more personal reason for Civil Defence.

Offsetting this country's space and population advantages, said the Deputy Co-ordinator, "is the likelihood that the air over Canada will be the scene of the vital air battle for survival in the next war."

"This means that many enemy aircraft with nuclear bombs intended primarily for the United States are likely to engage secondary targets in Canada." That is, enemy bombers under attack by Canadian and American fighter planes would be expected to head for Canada's large cities with their deadly loads.

Many might be shot down over Canada and Civil Defence authorities estimate that bombs in about half of these planes would explode automatically, their unaimed devastation hitting almost anywhere and their dangerous radioactive fallout drifting down on many unpredictable areas.

There is another more personal reason for Civil Defence in the small town: natural disaster. The aim of Civil Defence is to minimize the effects of disaster upon the civilian population.

Much of the action necessary to alleviate the effects of atomic attack is the same as for such natural disasters as fires, floods, hurricanes, tornadoes and earthquakes. Each of these natural disasters have characteristics which indicate the effects likely to occur and the course of action necessary to meet those effects.

In the case of floods such as those that hit British Columbia areas in 1955, the communication system a Civil Defence plan would provide, could be used to warn the small, comparatively isolated communities. There would be time to prepare to meet the threat. The same advantage would be available to offset the destruction of hurricanes like Hazel that brought so much disaster to Ontario in 1954.

And once the threatened areas were warned, the Civil Defence organization would be prepared to go into action quickly to meet the threat. For a Civil Defence plan's aim is only to bring under one organization the services that already exist in most communities and to train volunteers to supplement each of these services; fire, police, health, welfare, rescue, transportation, engineering and public utility restoration.

The threat of atomic disaster has only made more urgent the need for a well-planned organization ready to take the sting out of any of the natural calamities that may unexpectedly threaten a community almost any time.

## CHAPTER 12

### Community Resources



What can a small town, with its small population and limited resources, do to defend itself and help defend the rest of the country against disaster, nuclear or natural? The answer is "quite a bit".

Federal Civil Defence planners, whose job it is to work out and guide into the operational stage a disaster plan for the whole country, say that a small town or community needs an executive committee composed of the reeve and two or three responsible officials, to lay down policy, a director and a small planning committee.

These committees are made up of the people who head the various services such as welfare, health,

police, fire, communications and others whose knowledge makes them valuable to Civil Defence planning.

Since the role of most small towns and villages would be as reception areas for evacuees from cities, their plans should be worked out with this role in mind. The women's organizations in the churches, for example, should be trained and ready to provide food for large numbers of evacuees from a city hit by an H-bomb. This same preparedness, of course, could be applied to feeding large numbers of persons made homeless suddenly by a flood or a tornado or a landslide such as the one that recently carried parts of Nicolet, Quebec, into the river.

The welfare of people includes providing them with a place to sleep. A small town's plan should include a survey of the sleeping space available, remembering that in an emergency people can sleep in barns, lofts and garages as well as the guest room.

A small town's Civil Defence plan, therefore, might require stockpiling at a central point such welfare essentials as blankets, and foods, particularly dry-powdered milk and canned goods.

While few small towns would have to worry about actually being hit by an H-bomb if war came, many would be effected by the dangerous radioactive fallout from the bomb's blast. So the welfare planning could prove a boon to the small town's own inhabitants. For fallout can contaminate fresh vegetables, milk, eggs and so on. Food in cans, however, is safe.

Ordinary buildings provide a degree of protection from fall out. Basements are better and root cellars even safer. So a Civil Defence plan for a small town

should include a survey of the fallout shelter available, for its own residents as well as possible visitors from less fortunate areas.

Because of the danger from fallout, a small town's Civil Defence plan should also include a trained monitoring service; that is, persons with the necessary equipment for detecting the degree of danger from fallout. This requires training and Civil Defence can provide that training.

The small town Civil Defence plan should also include a communications system. It must provide a means of warning the farmers around the town.

To achieve maximum results, the country's Civil Defence organization must extend to every community, no matter how small. It is being set up in many provinces on an area basis, each area embracing a number of towns and communities that can help each other.

But each town must still have its local director to co-ordinate its efforts with those of the rest of the area.

## CHAPTER 13

### Natural Disaster



Much is spoken and written these days about the destructive powers of the hydrogen bomb. Nations have their national defence plans and their Civil Defence plans cooking on the front burner in case they should be attacked with nuclear weapons. But there is another enemy, one that existed long before the H-bomb and is capable of just as much destruction. It is, moreover, ever present: Nature:

In recent years, nature in the form of floods, hurricanes and even landslides has wrought destruction across widely scattered areas of Canada and the United States. The loss of life and property and the attendant suffering, both physical and mental, have been almost

as great in some instances as if an H-bomb had fallen. And the after-effects linger.

Preparation for disaster—almost any kind of preparation—could have prevented some of the loss and lightened much of the rest. The threat of disaster from the H-bomb seems to have released a good many Canadians from a common inertia of preparing to defend themselves before the need to do so is forced upon them by emergency conditions. Canada's Civil Defence planners and more and more Canadians are beginning to see the advantages a Civil Defence plan in any community can provide—even if, as everyone earnestly hopes, the horrors of nuclear warfare never call it into play.

In the New England states, for example, the destructiveness of hurricane and flood was greatly lightened in many areas because towns and cities, under the threat of the H-bomb, had set up Civil Defence organizations.

In New Haven, Connecticut, the damage was light within the city itself. But its Civil Defence rescue units were able to come quickly to the aid of nearby communities hard hit by the elements. The New Haven Civil Defence units alone were credited with rescuing almost 1,000 persons who otherwise might have perished or at least undergone prolonged discomfort.

The same thing happened in Manitoba's Brandon area when floods hit there. The residents, through their extensive Civil Defence organization, were able to protect themselves. They did not have to call on the armed forces for aid.

The little Civil Defence organization just beginning to blossom in Nicolet, Quebec, had a part in rescuing some of that village's residents when a section of it slid into the river. Afterwards it set up a welfare centre to help care for those made homeless.

So, while Civil Defence aims primarily at organizing Canadians to protect themselves in event of war, its organization is proving invaluable in peacetimes as well. For it provides direction and know-how. Willing workers are always available when disaster strikes, but for all their willingness their efforts are often not nearly so effective as they would be with proper training.

A Civil Defence plan should, according to federal planners, be flexible. Therefore, a lumber town, for example, can organize its Civil Defence plan with the idea of meeting the threat of forest fires.

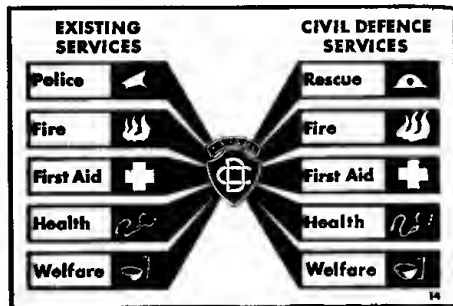
In that case, not only can lives be saved that otherwise might be lost, but property also can be saved if plans to meet the disaster are ready beforehand.

It is hoped that Civil Defence will never have to be used in a war. But, when any disaster strikes where there are no previous plans to meet it, somebody always suffers needlessly.



## CHAPTER 14

### How it Operates in Natural Disaster



The basic job of a Civil Defence organization is to save life in disaster, whether caused by nuclear weapons or nature in the form of flood, fire or hurricane. But services set up and enhanced by a Civil Defence organization can also do much, especially in the case of natural disaster, to protect property as well.

For Civil Defence is not some new entity seeking to gain a place of prominence for itself in the community. It is merely the name given to a plan under which existing services can be unified and supplemented for swift action in the face of unusual emergencies.

The threat of war to North America has only served to point up the need of such an organization.

Civil Defence seeks to recruit volunteers from the civilian population in cities, towns, villages and farms to train as auxiliary firemen, police, first-aid workers and so on. For while these forces exist already in numbers sufficient to meet normal requirements, there are often sudden emergencies when it is humanly impossible for them to meet the demand.

In towns where floods may come unexpectedly, there is no time once the water is in the streets to train the residents how to save themselves and others. Mistakes can be made without danger in a course on artificial respiration, for example, but on someone nearly drowned, a mistake can be fatal. The same goes for first aid. Civil Defence aims at training the population to combat such emergencies before they arise.

Fire seldom comes with warning. Suddenly there is a shout, then flames, then destruction and sometimes death—unless the resources to quench the flames in time are ready. Civil Defence aims to provide these resources through volunteer training; resources in the form of persons who can give firemen and rescuers trained and efficient assistance in saving property as well as lives.

The same swift, workmanlike organization possible under an alert local Civil Defence organization can go into action to meet any other form of disaster, including the worst of all: war.

And once the initial onslaught of disaster has been met, it is equally as important to know how to clean up and alleviate the aftermath. Civil Defence

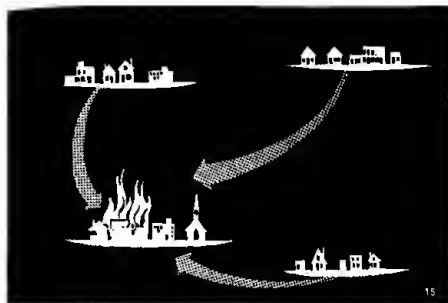
planning, as conceived by federal and provincial officials, has dealt with that angle, too. It provides for a trained health and welfare group.

That means a town or village can be prepared to provide food and shelter for persons made homeless. Persons trained in Civil Defence first-aid procedures can help doctors and nurses, who are usually overworked in disaster anywhere, to bring fast attention to those who need it.

But possibly the most important aspect of the Civil Defence plan in any community is that it takes in all the services necessary to meet disaster and provides thus to make use of them in the most efficient way: a plan.

## CHAPTER 15

### Natural Disaster, A Vital Rural Problem



As far as natural disaster is concerned, Civil Defence can possibly prove more important to the small town or rural area than to the city.

Disaster can come in many forms. Possibly its most frequent and familiar form is fire.

Fire can sweep a whole block, or two or three blocks, of a city without wiping it out. Disastrous as such a blaze would be to any community, however large, it would hardly put the whole city out of jobs if, for example, the flames destroyed a factory. There are hotels, YMCA centres, Salvation Army shelters and dozens of other similar places in a city in which people driven by fire from their homes can take temporary shelter.

But the small town can't always withstand such a blow. Its whole existence sometimes depends largely on one industry. Let disaster in the form of fire—or flood or tornado, for that matter—strike it and the town has suffered a serious if not fatal injury to its chief source of income.

In combating such natural disasters, the city has other advantages over the rural area. There are usually many more fireman and more and better fire equipment to battle the flames. There are large numbers of police to call on for assistance in these and other emergencies if the need is great enough.

And if more help is still required, the city can provide far more volunteers from its own population than the small town or the farming area.

It is especially important, therefore, that the small community make the best of what it has. Even though spurred primarily by the threat of possible war, a Civil Defence organization can help a community to combat natural disaster.

The Federal Civil Defence organization has worked out plans flexible enough to fit the local needs of every section of the country. All they require is a willingness on the part of each community to put these plans into use.

Through Civil Defence planning, the town with a two-man police force and a volunteer fire brigade can recruit and train other residents to help make the best of these facilities in whatever unexpected disaster comes.

It is only by effective planning that the maximum use can be made of the lighter manpower available in the smaller areas.

And, through Civil Defence co-ordination, several small communities can work out a system of mutual aid; that is, they can be prepared beforehand to help each other when the unexpected situation makes such co-operation urgent.

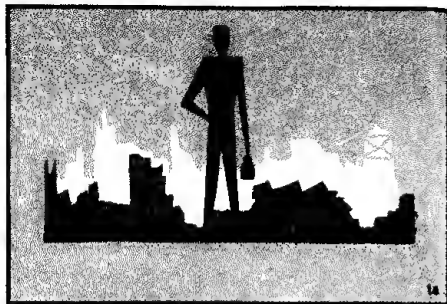
The farmer has not been forgotten, either, in Canada's Civil Defence plans. The planners have worked out means of warning him, too, of approaching disaster and of bringing him aid when he needs it.

The plans are there and in most communities a nucleus, at least, of the services to put them into action already exists. All that remains is for the residents of the community to ask for them and then learn how to apply them to the particular needs of their part of the country.

Civil Defence seeks only to help people help themselves.

## CHAPTER 16

### Evacuation — Its Effect on a City Dweller



The only really sure way to save lives of persons living in a city threatened by attack with hydrogen bombs is to evacuate them to areas out of the blast's long reach. This is easier said than done, for it creates many problems. Civil Defence planners are certain, however, that none of these problems is impossible.

If an H-bomb attack was on its way to North America, there would be time only to clear out. Civil Defence officials emphasize that people would have to flee from wherever they happened to be in a city when the warning came.

There would be no time to return home from the office and rejoin the family. Even those at home would have time only to grab what necessities were handy.

The chief problem of evacuation, of course, is keeping the traffic moving. Civil Defence organizers plan to divide cities into sections, each one with its own exit route and destination in the country.

But as soon as he gets into the rural area, the small town or village, the city dweller who fled with scarcely more than his life would have a whole new set of problems to face.

First in the view of Civil Defence planners is that of reuniting families. They feel that the first thing a man who had to leave by one route for one destination while his wife and children left by another route to another destination will want to know once he escaped the immediate danger is: "Where are the wife and kids?"

Civil Defence officials believe they are solving the problem of at least arranging for families to learn where each member is once they've left the city. But it can only be done by setting up a nationwide network of Civil Defence organizations built around existing services and facilities, which include trained volunteers who know how to count and identify heads in a hurry.

The displaced city dweller will also need clothing, food, a place to sleep, and money. Civil Defence aims to develop means in every community so that these essentials could be provided if war ever makes them necessary.

The H-bomb would wipe out whole cities and make them uninhabitable for months, years or possibly

even a century or two through deadly radiation. That means many city dwellers would have to be evacuated on a permanent basis. They would have to find new homes, new jobs; in short, the whole population of some of Canada's biggest cities might have to be relocated. This would be a tremendous job, but if it were thrust upon the country by an enemy aggressor, it would have to be done. Death would be the only alternative for hundreds of thousands of city residents.

"In my opinion," said the Federal Civil Defence Co-ordinator, "the day of the great city with its population density is ended.

"Or certainly will be ended if and when nuclear weapons are used in warfare.

"So far as we are able to determine, the best defence against atomic weapons is space. Once a great city, such as Montreal, has been laid low by a nuclear weapon . . . a large area of 100 to 200 square miles in that city will be rendered uninhabitable for a very long time.

"Survivors from these areas must necessarily be distributed over small communities and newly planned and built towns. I do not think that great cities will be allowed to grow again in the haphazard way of the past."

## CHAPTER 17

### Evacuation—Its Effect on a Rural Dweller



If atomic warfare ever comes to Canada, the most permanent effects of evacuation of the large cities likely to be bombed will be felt by the smaller cities, towns and villages and even the farmers.

For the city resident can save himself from the destruction of a hydrogen bomb only by fleeing to the country. If his city were wiped out and made uninhabitable by the blast, he would have to remain in the smaller centre. He could not go home again; he would have no home to go to.

Under Canada's Civil Defence plan it is the responsibility of the rural dwellers to be prepared to cope with the problems evacuation of the cities would bring them. And these problems are many and varied.

The immediate demand the evacuees would make on the country folk would be for shelter, not only from the elements and the weather but also from the threat of the blast's aftermath: radioactive fallout. The fallout of pulverized cities from one H-bomb could contaminate areas more than 200 miles long and 40 miles wide with radioactive dust that might remain dangerous for 48 hours or more.

Where would a small town or village shelter up to five times its normal population for 48 hours or more? How would it feed them for that time? Supply them with water?

These are only a few of the problems a local Civil Defence organization can work out in advance. It is only by advance preparedness, training and practice that the tremendous demands a nuclear emergency would make on rural dwellers could be met.

Since Civil Defence planners expect the whole country eventually to be divided into evacuation zones—with persons from pre-determined sections of large cities going to pre-determined sections of the rural areas—any community, no matter how small, must be prepared to care for the injured almost certain to turn up among the evacuees.

There would be extra demands on a small town's water supply and sanitation capacity. The town engineer, who would know what these facilities could take and how best to expand them, is therefore an important part of any town's Civil Defence setup. Civil Defence volunteers might be needed to help him.

The evacuees might outnumber the town's normal residents by as many as five to one. That poses the problem of law enforcement. No town police force

can by itself provide the necessary protection from the criminal element that accompanies any such crowd. With trained Civil Defence volunteers, however, it would have a better chance of doing so.

Besides the necessity of people who live in the country and the small towns and cities to help their less fortunate city dwellers in event nuclear war requires mass evacuation, there is the possibility that rural dwellers themselves may have to evacuate.

Under certain circumstances the rural residents must be prepared to move to safer territory themselves. The chief cause of this would be fallout.

If the weather conditions were such that heavy concentrations of this dangerous and quite possibly deadly dust were likely to sift down on a town or village after a city had been blasted by an H-bomb, then the inhabitants would have to seek shelter elsewhere.

How would such people know where to go? Or when the danger was such that they must go?

That is another of the many reasons why Canada seeks to organize Civil Defence in every community. For it is the purpose of Civil Defence to work out these problems and allow every individual to learn and be trained in the surest and swiftest method of putting the solutions into action.

## CHAPTER 18

### Radioactive Fallout



It would be a waste of time to head for the hills if a nuclear war ever came to Canada—unless the hills had been prepared ahead of time. Nor would it be any wiser to lie down in resignation to die in pieces. Fallout might get you wherever you were.

The facts about nuclear weapons, particularly the hydrogen bomb, are cold, hard and frightening. But they are real, and Civil Defence officials have spoken and written of them in detail and with the view that: "Ye shall know the truth and the truth shall make you free". Turning away from the facts will not change them.

Now, what are the facts about fallout? What is fallout?

Explosion of all nuclear weapons, including the H-bomb, has four characteristics: blast; heat flash; immediate radiation; residual radiation. Fallout is the common term for residual radiation.

The blast results from an instantaneous release of immense energy by fission and fusion of atoms. It produces an extremely high temperature within a few millionths of a second in the form of a ball of fire. Its light has been estimated to be about 100 times that of the sun.

Where the fireball touches the ground the surface becomes highly radioactive for a considerable time and almost everything, including great chunks of earth, is pulverized. The fireball may be three miles across. It sucks up the pulverized material possibly 70,000 feet in the air. It is this pulverized, radioactive material which may be carried by the winds over areas 200 miles long and 40 miles wide, or bigger, and then settle to the earth, contaminating all it touches. This is called fallout.

Humans and animals subjected to fallout radiation may receive fatal doses or enough to cause severe illness. Safety lies only in refuge. So the hills won't save anyone without adequate shelter and without it, death might come slowly and painfully.

The federal and provincial Civil Defence organizations have a plan to take care of both these problems. But it can be used to protect every community in the country from possible atomic disaster only if every community in the country—and its inhabitants—are willing to study it and put it into practice.

But fearsome as this may sound, there are bright spots. Radioactivity of fallout decays very rapidly

and, generally speaking, 48 hours after it has fallen, the danger has largely disappeared. Those in proper refuge would be able to come out unharmed.

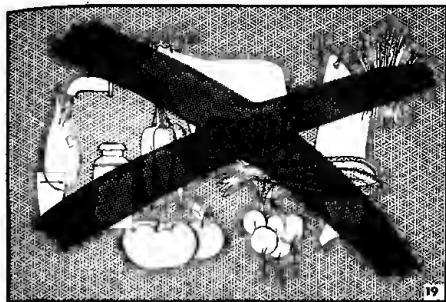
Refuge from fallout is very simple. The basement of a house will provide about 90 per cent immunity. This may not be enough in some heavily contaminated areas, but additional immunity can be obtained by sandbagging the basement windows and the floor above. For protection from radiation depends on the thickness of what is between a person and the radioactive material, not the strength.

An outdoor trench with a three-foot covering of earth would give excellent immunity, Civil Defence officials say. In rural areas something in the form of an old-fashioned root cellar would be a ready-made fallout refuge.

Since no one could predict ahead of time where the fallout from a blast would settle to earth, a means of warning residents in an endangered area quickly after the bomb went off must be set up. And once the residents have been warned and have taken refuge, a means of determining when it is safe to come out again also must be set up.

## CHAPTER 19

### Radioactivity – Problem of Modern War



Radioactive particles falling out of the sky in the wake of the nuclear explosion would threaten life in several terrifying ways, but the knowledge to cope with this threat exists.

If left in the open, Civil Defence officials say, livestock would be contaminated, then milk probably made unfit to drink and meat unfit to eat. Certain forms of radiation, if washed into the ground by rain or melting snow, would render crops unfit for consumption. It could contaminate water supplies.

Livestock and poultry, just as humans can be protected simply by keeping them in the barn during the estimated 48-hour period when radiation is most



dangerous, before it decays and loses its potency. This means provision would have to be made for someone to stay in the barn and feed and water the stock during the entire danger period. A safe place similar to a basement radiation refuge should be built in the barn for this reason.

But what about field crops, farm implements, buildings? They cannot take shelter.

Fortunately, radioactive contamination can be lessened in a number of ways. One of the best is to flush down buildings with water from a hose or a pump. But care must be taken to see that water carried off does not contaminate wells, streams or other sources of drinking water.

On grease-coated machinery, water won't do. Civil Defence officials say these implements can be cleaned only with steam. If means for this are not available, there is nothing to do but wait for the radioactivity to decay by itself.

A vacuum cleaner can be used to pick up dry radioactive dust, but the dust in the bag must be destroyed by burying it in the ground.

Contaminated clothing also should be disposed of by burying. In some cases it may be made safe by washing, but Civil Defence officials advise against using a washing machine.

A bulldozer can be used to clean the surface of the ground and push contaminated materials aside where they can be covered with fresh earth. This method could be used on crops contaminated beyond safe use.

Persons working in an area of contamination, particularly if it is dusty, should wear some protection

for the eyes, nose and mouth. Tight-fitting goggles and a respirator—or even a wet cloth covering the nostrils—will help. Cotton coveralls, cotton or canvas bottees taped round the trouser leg, gloves and a tight-fitting head covering like a surgeon's cap are useful. Afterwards this clothing should be destroyed.

Personal decontamination is simply a matter of washing. This means scrubbing the whole body with a detergent and water. If the hair is oily, it may require several washings.

The greatest danger from radiation comes from external exposure, from radioactive particles or dust settling on the body or clothes. Enough of these can destroy any living tissue, particularly in the blood-forming system.

A lesser amount can cause skin burns and other damage to uncovered parts of the body. Clothing, therefore, can provide some measure of protection.

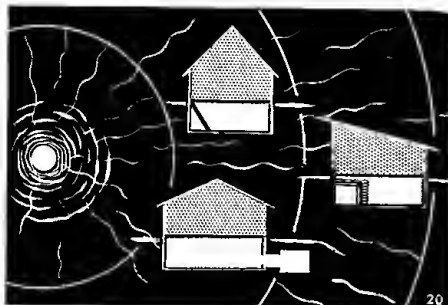
Although a person can become seriously—or even fatally—ill from breathing radioactive dust or eating or drinking contaminated food or water, Civil Defence authorities say this danger is far less than from direct exposure.

Radiation is not new. Living things have always been exposed to it from natural sources. Cosmic rays from the skies constantly bombard us. There is a small amount of radiation from the luminous dial of a wristwatch, from an X-ray picture being taken.

The radiological hazard is not unknown and because something is known about it, Civil Defence officials say something can be done about it. Civil Defence seeks to teach people what can be done.

## CHAPTER 20

### Shelters



A few strategically placed sandbags and some stout timbers, materials often used in air-raid shelters during the Second World War, would be less than useless against a hydrogen bomb blast, but they might save you from death or serious injury in the radioactive aftermath of the blast.

Shelter—any kind is better than none—still affords protection from all effects of an H-bomb explosion: blast, heat, initial radiation and residual radiation. But shelters have changed since the comparatively puny bombs were falling in the last war.

Civil Defence officials say no shelter would save persons near the centre of an H-bomb explosion, but

chances for survival would be good if adequate shelter were taken quickly outside the zone of complete destruction.

Since Canada's Civil Defence plan is based on mass evacuation of the areas likely to be hit by an H-bomb, the fallout refuge has taken on special significance. But for those who couldn't get far enough away in time, a basement shelter of reinforced concrete likely would provide the best protection from blast and heat.

Civil Defence officials who have seen United States nuclear tests estimate that if an H-bomb of five megatons—the equivalent of five million tons of T.N.T.—were exploded, there would be complete destruction within a radius of about three miles but beyond that, adequate shelter could save those in fringe areas where damage would be terrific but not 100 per cent.

Witnesses at the Nevada tests, said basement shelters in houses in the B zone—from three to six miles from the centre of the blast—remained intact although some of the houses collapsed around them. These were a built-in concrete box-shelter, a lean-to against a basement wall and a portable tubular steel box covered with corrugated iron.

But a refuge from fallout is different from a blast shelter. The former requires thickness rather than the strength of the latter.

The best protection from fallout—the radioactive dust that settles over large areas following an H-bomb blast—is an outdoor underground refuge covered with at least three feet of earth. A root-cellar would be a natural one.

The earth will provide a shield against radiation and Civil Defence authorities estimate that such shelter would cut the radiation intensity to only about 1/5,000th of the rate above ground.

Next best would be a basement shelter. Here again, concrete is perhaps the best material. For blast it must be reinforced, but not for radioactivity, and the thickness required can be reduced by putting high density materials into it.

For those with no prepared shelter, the basement is the best place in the house to go. Radiation there would be about one-tenth what it was outside. In a house that has no basement, closing the windows and doors and remaining on the first floor of an ordinary frame house would cut radiation by half. In a brick or stone house radiation intensity would be less.

A shelter should be stocked with a seven-day food and water supply, blankets, first-aid kit, flashlight with extra batteries and a battery powered radio.

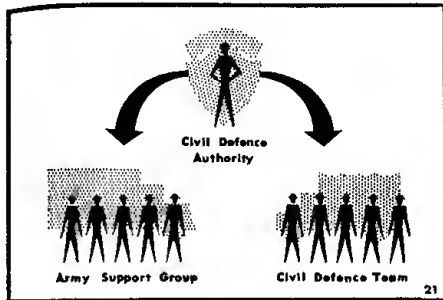
The middle of a large barn would be a good place to go in a fallout area if there were no other shelter. Added protection could be achieved there by stacking bales of hay or straw around you.

A person caught in open country in a fallout area could reduce the danger by remaining in his car with the windows closed or taking cover in a thick growth of trees. If there were time and a person had anything to dig with, a fox hole with some kind of cover would help.

The important thing, Civil Defence officials say, is to get under something—anything that will keep the fallout off you.

## CHAPTER 21

### Armed Forces



Canada's armed forces exist primarily to fight the enemy if he attacks, but in recognition of the importance of Civil Defence, they are now prepared to lend their aid on the civilian front if necessary.

G. S. Hatton, Deputy Federal Civil Defence Co-ordinator, has said:

"The successful military defence of a country is the best type of defence, but since we are assured that no defence can be perfect and that enough bombers may be expected to penetrate our military defences to cause mass destruction, we must spare no effort to build a strong Civil Defence . . .

"The whole country—the services no less than the civil population—is involved in Civil Defence."

The Army in particular has been prepared to augment Civil Defence. During 1956 its five commands across the country set up mobile support groups designed to meet the peculiar needs of the area it would serve in war or natural disaster. Acting in support of, and not in replacement of, Civil Defence, the Army's services will be utilized on tasks for which they are most qualified because of their training.

In outlining the army's plans for supplementing Civil Defence organizations, Brig. R. R. Rothschild, of the Joint Chiefs of Staff Committee in Ottawa, said army commanders would appoint a liaison officer to work in co-operation with local Civil Defence authorities.

The mobile support groups are designed to help the Civil Defence effort primarily in time of war, he said. But the armed forces, as has always been the case, would provide all the emergency assistance required of them in event of any natural disaster such as floods, fire and so on. In many cases this assistance likely would include the mobile support groups.

The military would come to the aid of the civilians at the request of the civil authority, as it always has. In communities with a Civil Defence organization, military assistance would be provided at the invitation of the Civil Defence authorities and over-all direction of joint Army Civil Defence projects would be supplied by Civil Defence leaders.

Everything possible is being done to provide Canada with adequate air defence, but as military authorities admit, no such defence can be perfect.

Three chains of electronic warning devices have been built across the continent by Canada and the United States. One is along the U.S.-Canada boundary, another is across the middle of Canada and the third—the DEW line—along Canada's northernmost fringe.

But these lines will not stop enemy bombers. They will warn of their approach and the task of stopping them would fall to the air forces of both Canada and the U.S. Even then, it is considered impossible to guarantee that every bomber, each of which likely would be carrying nuclear bombs, could be stopped short of the populated areas.

There are about 40 cities in North America where population and industry are concentrated. If only 10 per cent of a 400-plane attacking force—a very small average compared to Second World War experiences—got through, the heart of the continent's productive capacity could be seriously impaired.

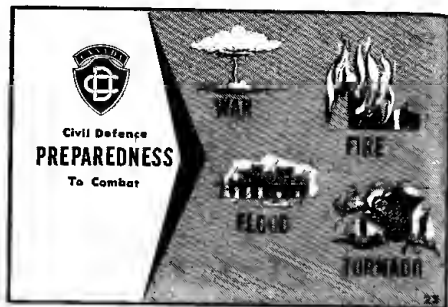
Any potential attacker of North America is faced, of course, with retaliation that could bring him the same destruction or worse.

But it is obvious why officials of all western countries feel it is more vital than ever to frustrate an attack by a system of passive defence. In this continuing need, to use the Deputy Co-ordinator's words again:

"Civil Defence is now a permanent partner of military defence."

## CHAPTER 22

### Collective Responsibility



What a community does for itself provides the surest protection for its citizens. In any community, town, village or hamlet, the responsibility for Civil Defence falls primarily to the mayor, reeve or other local government authorities.

The importance of leadership by public officials, said the Federal Civil Defence Co-ordinator, is vital.

"In those provinces that have endorsed Civil Defence and set up an operating staff, the progress has been phenomenally good.

"Likewise in those communities where the mayor and his council have endorsed Civil Defence progress has also been good."

The federal government can provide financial assistance, training and a plan. The provincial government can supplement these and help pass them down to the local level. But from there, the success or failure depends entirely on the community leaders.

If a community has a well-organized Civil Defence setup, the mayor or reeve and the councillors deserve a good deal of credit. But on the other side of the picture, they also must be prepared to shoulder the responsibility of failure to protect their fellow townsmen should disaster catch the community unprepared.

The federal government cannot step into communities where municipal officials have negotiated this responsibility. Neither can the province. For Canada's constitution carefully protects the rights of each level of government.

It is just this careful delineation of rights that throws the final responsibility for Civil Defence preparedness on the municipal government. It is only at that level that measures for the protection of every member of the community can be properly put into effect.

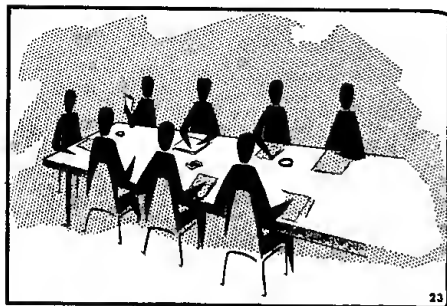
Every right or privilege bestowed on a government or, for that matter, on an individual, automatically requires the responsibility that such a right or privilege be fulfilled and not abused or neglected.

For the right to run its own affairs, the municipal government therefore, must accept the responsibility of running them in the best interests of its citizens.

Since the state of world politics today has thrust Civil Defence on every individual in every allied country, including Canada, it cannot be set up effectively to protect every community unless the public officials of every community are prepared to take an active part in it.

## CHAPTER 23

### Individual Responsibility



The success of any project, however large or small, depends eventually on the attention given to details. That is true of the way an individual lives his life. If he takes care of the moments, the hours and the days will take care of themselves. That is particularly true in a free nation whose individual members, if they are alert to their rights and responsibilities, can wield and influence on their governments.

Governments in Canada, whether municipal, provincial or federal, must bow to the will of the majority of the voters on election day. If they forget the wishes of the majority the day after, then they can be sharply reminded when election day comes round again.

The final responsibility for a government's policies, therefore, falls on the shoulders of the free nation's individual members.

It is not an easy responsibility to fulfill. It never has been, but the tensions that have appeared in the world in recent years have made it doubly important.

The development by the Communist countries as well as the Western nations, of the ability to wage nuclear warfare, with its almost unbelievable potential for death and destruction, has imposed on the individuals of every free nation a new and demanding responsibility: to see that everything possible is done to prevent such a war.

But failing this, there is also the responsibility of being prepared to defend ourselves if war comes. This preparation takes many forms, but the one in which the individual can be most influential today is Civil Defence.

The individual, whether he lives in a city, town or village or on a farm, can first learn what he must do to protect himself. He owes himself that.

Then he can volunteer his services for whatever job he can do. In this way he can help to protect not only himself but also the other members of his community should disaster strike. And his training and knowledge can be applied to other forms of disaster than nuclear war. His efforts, effectively channeled through proper training and direction, can help save lives and property from fire, flood, tornado and other forms of natural disaster that may hit a community at any time.

"In my opinion," says G. S. Hatton, Deputy Federal Civil Defence Co-ordinator, "every citizen has a dual responsibility in respect to Civil Defence.

"First—to be prepared; that is, to know what he and his dependents must do to survive." But he adds a second one, and possibly the more important:

He must be prepared "to persuade, that is, to support at all levels of government responsible administrators who will in turn support Civil Defence and so ensure the survival of our nation."

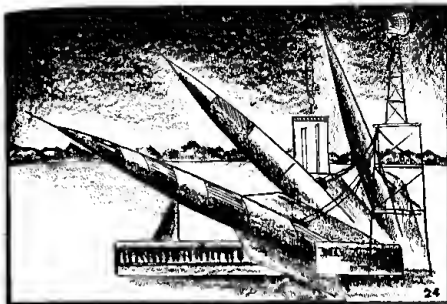
It is, therefore, the responsibility of the citizen of any community to ensure that they elect to office officials who are concerned for the safety of the community in disaster, whether from war or the rampaging forces of nature.

And in the view of many officials, including President Eisenhower of the United States, Civil Defence is not only defence but also a form of passive offence. He has said:

"The task of Civil Defence is vital to our national life. It demands a preparedness that can do more than limit the damage of a wartime disaster. It means developing a preparedness, a vigilance, so impressive as to deter aggression itself."

## CHAPTER 24

### The Future



The need for Civil Defence in Canada is here to stay for as long as the possibility of war is around. In fact, the Civil Defence organizations may be with us even after the threat of a nuclear conflict has disappeared—if it ever does—because of the usefulness of such a plan in combating natural disasters.

Civil Defence planners are putting heavier emphasis on their plans' advantages to any community struck suddenly by disaster from nature out of control. That is, in floods, fires, tornadoes and so on.

Since Canada's Civil Defence plan seeks only to co-ordinate and enhance through proper training and guidance the disaster services that already exist in a community, its value even in peacetime is obvious.

And once a community's Civil Defence organization has shown its ability to help prevent loss of life and property against disasters that can come even when there are no wars, the inhabitants quite likely would want such a setup maintained.

It would be highly unrealistic, however, to forget the possibility of armed attack at the present time. Until the day of world peace comes, Civil Defence must be prepared to meet this greatest of all disasters.

How long might that be? It is doubtful that there is a reputable crystal-gazer in business anywhere today who would care to predict the answer.

"What is the main aim of Soviet Russia?" F. F. Worthington, when he was Federal Civil Defence Coordinator, once asked an audience. He gave his own answer:

"Lenin (one of the original Russian Communist leaders) tells in his own words, 'to bring to triumph the world revolution, to create the Soviet Republic of the world' or world domination under Soviet Russia."

Originally the Communist aim was to dominate the world through bloody revolution. If it has changed, it has done so only in the method, not the eventual outcome. The Communists may have decided they can dominate the world by winning a bloodless cold war. Only the Russians could say.

While all of this is only speculation, one thing seems certain: there appears little hope of obtaining an international climate in which free nations can relax their vigilance.

And aside from considerations of the threat of war is the fact man has not yet learned to so control the forces of nature that he can predict and prevent entirely their sudden onslaughts against him.

The value of Civil Defence to a community goes far beyond its immediate objectives. Besides their potential for protection in the time of war, Civil Defence measures can have valuable peacetime application as well.

In a serious peacetime disaster a well-equipped, properly trained Civil Defence force can be of inestimable value in maintaining public morale and in restoring normal conditions quickly to the stricken community.

Speaking of Britain's organization, British Home Secretary Sir David Fyfe once said:

"Civil Defence is not just a crisis organization to be built up whenever the international situation gets worse and forgotten when it improves.

"Civil Defence is a permanent element in our defence, a permanent feature of local government and a permanent part of the responsibilities that fall on all of us as citizens of a free country."

The same applies to Canada. It likely will continue to apply as long as the slightest possibility of the most horrible disaster of all, nuclear warfare, remains.



Produced by  
Information Services Division,  
for Civil Defence of the  
Department of National Health and Welfare  
by authority of the Minister,  
The Hon. J. Waldo Monteith  
1958